KALMIOPSIS, A NEW GENUS OF ERICACEAE FROM NORTHWEST AMERICA

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Plate 40

THE DISCOVERY in Oregon by Mr. and Mrs. Leach of a new ericaceous shrub subsequently described by L. F. Henderson as *Rhododendron Leachianum*[1] is highly interesting, particularly as this shrub turns out to be a new genus related to *Loiseleuria* and *Kalmia* and also to *Rhododendron* for which I propose the name *Kalmiopsis* referring to its general resemblance to *Kalmia polifolia* Wangenh. In its inflorescence it agrees closely with *Kalmia polifolia* Wangenh. except that it has alternate instead of opposite bracts. The inflorescence in both species is a short raceme terminating last year's branchlets; the bracts decrease in size toward the apex, the lowest being more or less leaf-like; the persistent bractlets surround the pedicels at the base and together with the bract act as protecting scales for the flower-buds during the winter, The calyx in both species is 5-parted, rather large, colored and gibbous at the base, forming a ring around the immersed apex of the slender pedicel. The corolla is similar in size and color in both species, but in *Kalmiopsis* more campanulate and lacking the peculiar pouches of *Kalmia*. The capsule is subglobose and thin-walled and the valves bifid at the apex in both genera. In *Kalmiopsis* the under side of the leaves and the inflorescence are dotted with lepidote glands absent in the genus *Kalmia*. *Loiseleuria* has the same inflorescence as *Kalmia polifolia* though reduced to fewer flowers, the calyx too, is similar, but the number of stamens is only 5, the anthers are dehiscent by longitudinal slits and the ovary is 2–3-celled. The capsule is similar to *Kalmia* and *Kalmiopsis*. Like *Kalmia* it lacks the glandular dots on the leaves and inflorescence. *Rhododendron* differs chiefly in its seeds which are enclosed in a loose and thin elongated testa lacerated or fringed at the ends and in the capsule which is more or less elongated, has woody walls and the valves not bifid at the apex. Its inflorescence, too, is very different, being an umbel-like raceme sometimes reduced to one flower, enclosed in scaly winter-buds before anthesis except in the subgenus *Therorhodion* which has a one- to two-flowered inflorescence terminating leafy shoots of the current year; it may well be considered a distinct genus as proposed by Small, connecting *Rhododendron* with *Rhodo-*

[1] L. F. Henderson in Rhodora, XXXIII. 205 (1931).

thamnus. The flowers in Rhododendron are more or less zygomorphous while in *Kalmiopsis* as in the two genera mentioned above they are actinomorphous. The peculiar lepidote glands are copiously present in the numerous species of the subgenus *Eurhododendron* Endl. except its section *Leiorhodion* Rehd. In its inflorescence and in the structure of its flowers *Kalmiopsis* shows a rather close relation also to *Phyllodoce* Salisb. and *Rhodothamnus* Reichenb. Both differ in the absence of lepidote glands on the under side of the leaves and on the inflorescence; *Phyllodoce* also in the crowded linear strongly reflexed leaves, the ovoid to campanulate corolla and the elongated style, and *Rhodothamnus* Reichenb. in the slightly zygmorphous flower, rotate corolla, long exserted style and long-ciliate leaves.

The new genus represents apparently, like *Loiseleuria* and *Rhodothamnus*, a phylogenetically old type of the Tertiary. The age of these three monotypic genera is also shown by the fact that they do not exhibit any variation, while *Rhododendron*, *Kalmia* and *Phyllodoce*, genera probably derived from these monotypic genera, have split up into many species, *Rhododendron* being apparently the youngest and most unstable in its specific characters. *Loiseleuria* being an arctic plant has still a wide circumpolar distribution, while *Rhodothamnus* is a relict of the European Alps and *Kalmiopsis* of the higher mountains of Northwest America. The last named is the most restricted, having been found so far only in two or three localities in the Siskiyous, a mountain range which shelters some other interesting local relicts as *Picea Breweriana* S. Wats., a species whose nearest relations are found now in southeastern Europe and Eastern Asia. Also *Quercus Sadleriana* R. Br. Campst. which is restricted to the same region has no close relation in western North America.

Kalmiopsis, gen. nov.

Calyx 5-partitus, persistens, basi gibbosus, segmentis oblongo-ovatis; corolla late campanulata, 5-loba, lobis late ovatis obtusis; stamina 10, corollae subaequilonga, antheris dorsifixis poris apicalibus dehiscentibus, filamentis filiformibus basi leviter dilatatis et ciliolatis; discus tenuis, obscure 10-lobatus; stylus brevis rectus, stigmate capitato leviter lobulato; ovarium hemisphericum, 5-loculare, placentis angulo interiori medio adnatis bilobis multi-ovulatis; capsula subglobosa, crustacea, septicide 5-valva, valvis apice bifidis ab axi placentifero solutis; semina ovoidea, utrinque obtusa, testa firma leviter reticulata.—Frutex parvus, sempervirens, gemmis paucisperulatis, foliis coriaceis breviter petiolatis subtus glanduloso-lepidotis, margine minutissime spinuloso-ciliolatis, floribus in axillis

bractearum in apice ramulorum in racemum congestis, graciliter pedicellatis, pedicellis basi bracteolis persistentibus suffultis, fructu erecto.

Genus monotypicum, proximum *Loiseleuriae* Desv., *Kalmiae* L. et *Rhododendro* L. A primo praecipue differt staminibus 10, antheris poris apicalibus dehiscentibus, ovario 5-loculari, foliis alternis subtus glandulosa-lepidotis; a secundo staminibus ab initio liberis, non antheris in foveolis corollae inclusis, foliis subtus glandulosa-lepidotis; a tertio capsula subglobosa, parietbus tenuibus, valvis apice bifidis, seminibus ovoideis utrinque obtusis, testa firma. Magis distare videtur a *Phyllodoce* Salisb. quae foliis congestis linearibus valde revolutis et corolla ovoidea vel campanulata differt, et a *Rhodothamno* Reichenb. qui floribus leviter zygmorphis, corolla rotata, stylo exserto, foliis longe ciliatis et ut genus pracedens defectu glandularum lepidotarum recedit.

Species unica Americae boreali-occidentalis incola.

Kalmiopsis Leachiana (Henderson), comb. nov.

Rhododendron Leachianum L. F. Henderson in Rhodora, XXXIII. 205 (1931).

Frutex erectus, valde ramosus, 15–25 cm. altus; ramuli annotini puberuli et sparse glandulosi; gemmae parvae, perulis paucis subfoliaceis ciliatis glanduloso-lepidotis. Folia sempervirentia, coriacea, elliptica, elliptico-oblonga vel elliptico-obovata, acuta vel obtusiuscula, rarius rotundata, mucronulata, basi cuneata, margine glabra vel fere glabra vel minutissime setoso-ciliolata, 1–2 cm. longa et 4–8 mm. lata, supra intense viridia, lucida et glabra vel interdum sparsissime glanduloso-lepidota, subtus paullo pallidiora et glandulis lucidis immersis distanter instructa, costa et venis 4–5 supra leviter impressis, subtus costa leviter prominula et venis vix visibilibus; petioli 1 mm. longi, minute puberuli et sparse glandulosi. Flores axillares, solitarii, 3–10 in apice ramulorum racemum umbellatim congestum formantes, flores inferiores in axillis foliorum parvorum apicum versus in bracteas ovato-lanceolatas glandulosas bracteolis paulo tantum longiores decrescentium; pedicelli graciles, 1–1.5 cm. longi, minute glanduloso-puberuli, imo basi bracteolis orbiculari-ovatis mucronulatis minute glanduloso-ciliolatis dorso glanduloso-lepidotis suffulti; calyx fere at basin partitus, lobis oblongo-ovatis vel ovatis 4–5 mm. longis obtusiusculis margine plus minusve glanduloso-ciliatis dorso sparsissime glanduloso-lepidotis vel glabris basi gibbosus et in annulum apicem pedicelli cingentem productus; corolla late campanulata, 10–12 mm. longa et 12–15 mm. lata, rosea, basin versus albescens, lobis late ovatis tubum latum circiter aequantibus margine leviter crenulatis vel undulatis

extus medio sparse glanduloso-lepidotis; stamina 10, corollam subaequantia, 8–10 mm. longa, filamentis glabris ima basi dilatata ciliata excepta, antheris oblongis 2 mm. longis lilacinis; pistillum dimidiam corollam aequans vel eam superans, stylo glabro 3.5 vel 8 mm. longo, stigmate capitato, ovario depresso-globoso dense glandulosa-lepidoto basi disco nudo tenui leviter 10-crenato inclusa excepta. Capsula subglobosa, 4–5 mm. diam., calyce persistente suffulta, seminibus late ellipsoides utrinque obtusis 0.5 mm. longis fuscis minute granulatis.

Oregon: higher Siskiyou Mts., Curry County, *Mr. & Mrs. J. R. Leach*, no. 2915 (in part), June 14, 1930; rocky ground on Horse Sign Butte and along Collier Bar Trail, alt. 2000–4000 ft., Curry County, *Mr. & Mrs. J. R. Leach*, no. 2915 (in part), May and June 1931.—Type in the herbarium of the University of Oregon; isotypes in the herbarium of the Arnold Arboretum and in the Gray Herbarium.

The plants of the three collections show slight variations in several characters. The plants of the collection of 1930 from the higher Siskiyou Mountains have the leaves elliptic to elliptic-oblong, acute or acutish at the apex, and only slightly setulose or glabrous on the margin, the inflorescences are 3–7-flowered and the style is 3.5 mm. long. Of the two collections made in 1931 on Horse Sign Butte and along Collier Bar Trail, the one which bears fruits of the previous season has an inflorescence and leaves similar to the 1930 collection, but the latter are rather densely setulose-ciliolate on the margin; the other collection has slightly shorter leaves elliptic to obovate-elliptic, obtuse or obtusish at the apex and with less densely ciliolate margin, and has generally 2–3- sometimes to 5-flowered inflorescences and the style 8 mm. long, exceeding the corolla. The variations in the length of the style is interesting; it can hardly be explained as heterostyly which is unknown in Ericaceae and must apparently be considered a seminal variation. The question whether this character is concomitant with the shape of the leaves can possibly be solved by making collections with exact indications of the locality of flowering material from all the stations and at the same time paying attention to possible variations of individual plants. Also mature fruit is much needed since we have so far only old disintegrating fruit of the previous year.

It is highly desirable that this little Ericaceous shrub which is not only botanically very interesting, but is also with its attractive rosy-purple flowers a handsome ornamental shrub for the rock garden, should soon be introduced into cultivation, so that this genus may be preserved at least in cultivation if it should become

extinct in its native habitat, which, owing to its limited distribution, seems not impossible.

HERBARIUM, ARNOLD ARBORETUM
HARVARD UNIVERSITY.

EXPLANATION OF PLATE 40

Fig. 1. Flowering branch from the 1930 collection (natural size).
Figs. 2 and 3. Flowers (magnified).
Fig. 4. Stamen (magnified).
Fig. 5. Longitudinal section of flower from the 1931 collection (magnified).
Fig. 6. Cross-section of ovary (magnified).
Fig. 7. Seed (magnified).
Fig. 8. Under surface of leaf from the 1930 collection (magnified).
Fig. 9. Leaf from flowering branch of the 1931 collection (natural size).